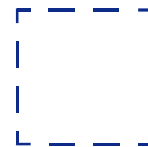


ASC/SMA BLDG 28
2145 MONAHAN WAY
WPAFB OH 45433-7017



TO: **PRODUCT SUBSCRIPTIONS**
ASC/SMA BLDG 28
2145 MONAHAN WAY
WRIGHT-PATTERSON AFB OH 45433-7017

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Editor's Notes

March 1998

This issue of TechTIPS, M-85 includes:

Q-98	1998 Customer Service Questionnaire
MM01	AFRL/Materials and Manufacturing Directorate's High-payoff Technologies
EB Issue #17	Environmental Bulletin
	EB0029 Bio-Tech Parts Washer
TB Issue # 34	Technology Bulletin
	TB0077 Explosion-proof Vacuum

Emerging Technology Bulletin Update:

ETB0040, September 1997, *Wire and Bristle Brush Replacements*. Tom Boyle replaces David L. Koppenhaver, as the new Marketing Supervisor for 3M Bristle Products. The Roloc Bristle Disc does not have a National Stock Number (NSN); however, it is on General Services Administration (GSA) contract GS06F0016D. The product may be ordered directly from 3M. Pricing information is available by calling (800) 944-4181 or orders may be faxed to (612) 737-4380.

Married – without children (...living at home!!!)

Yes, you heard it right! After years of living the single life, I've finally tied the knot. Last month I married my best friend of seven years. (Do you think we rushed it? Ha! Ha!) Your new *TechTIP* Editor is now Terrie Edwards. So rest assured, TechTIPS will remain the same great publication that you have all grown to love, only MY name will be changed to protect the guilty! ☺

If you want to contact by E-mail: techtips@ntnotes2.ascsm.wpafb.af.mil.

Coming next issue:

TA9873	Lawrence Livermore National Laboratory
MM02	AFRL/Materials and Manufacturing Directorate's
	Available Technologies
TB Issue # 35	Technology Bulletin
	TB0078 New Style Thread Restorer
	TB0079 Lead-acid Battery Analyzer

Terrie L. Edwards, Editor



TechTIP

Customer Service Questionnaire - 1998



PLEASE COMPLETE THIS CUSTOMER SERVICE QUESTIONNAIRE, INCLUDING YOUR
CURRENT ADDRESS, AND RETURN TO ASC/SMA,
BLDG 28, 2145 MONAHAN WAY, WPAFB OH 45433-7017 BY 1 MAY 1998.

Please check only one of the following boxes and reply to the corresponding question(s). Please use the additional space provided on the back of this page or another sheet of paper, if necessary.

☐ **I use TechTIPs as a source for making decisions.**



TechTIPs were used to make the following decisions: _____

☐ **I read TechTIPs and have successfully transitioned technology as a result.**

Do you have
success stories
you can share?

No

Yes

TechTIPs made these success stories possible: _____

TechTIPs made these cost savings/benefits possible: _____

☐ **I read TechTIPs only for general knowledge.**

How do you rate the overall value of TechTIPs?

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Lowest Highest

Name _____
Address _____
(Company/MAJCOM)
(Division/Office Symbol)
(Street Address)
(City/State/Zip)
Phone _____

TechTIPs Customer Feedback Questionnaire 1998

A couple of very productive years have passed since our last questionnaire. It is once again time to hear from you, our readers, concerning how well **TechTIPs** serves your needs. The **TechTIPs** production team strives with each published issue to match user technology requirements with the diverse available technology information we gather. Matching your needs with our solution sources is our primary goal.

Continuous product improvement is accomplished by both the owner and the customer. Nearly all the changes implemented during the past couple of years in **TechTIPs** resulted from previous Customer Feedback Questionnaire results and comments. We not only encourage, but enthusiastically look forward to, your timely completion and return of this feedback form so we can work better to plan for your needs. We also encourage you to tell us of your successes, which resulted from reading and acting on a **TechTIP** article you read.

While this form is still in your hands, please take a few minutes of your time to let us know what you like or dislike. Thank you for your assistance, and we look forward to serving you in the years to come.

Terrie Edwards, Editor

Additional comments from the other side:

ASC/SMA, BLDG 28
2145 MONAHAN WAY
WPAFB OH 45433-7017
Official Business

Place
Stamp
Here

TechTIP Questionnaire
ASC/SMA BLDG 28
2145 MONAHAN WAY
WPAFB OH 45433-7017

Environmental Bulletin



March 1998

(937) 255-7210 ext 3365

Number: EB Issue #17

Bio-Technology Parts Washer

EB0029

Cleans parts with little hazardous residue.

Normally, when workers use solvents to clean industrial parts, they create large quantities of hazardous waste that either require treatment before being released back into the environment or need to be documented and removed as hazardous waste. These treatment and transportation costs increase the cost of operations for the producer and endanger the environment.

McQueen Environmental Services, Incorporated, Marietta, GA, distributes a parts washer that reduces the amount of hazardous waste produced while cleaning parts and also decreases operational costs by recycling the cleaning fluid. The SmartWasher by ChemFree is a state-of-the-art parts washer that combines the convenience of bioremediation (using enzymes, bacteria, or fungi to breakdown organic compounds) with the ability to get parts clean.

The SmartWasher's special filter pad introduces dormant microorganisms into the cleaning process, forming a thriving colony once activated. As the solution begins circulating throughout the machine, it attacks and breaks down oil and grease particles, leaving a nontoxic residue to be trapped by the filter.

The enzymes attack only the oil and grease particles and will not harm metal, rubber, or skin. They eliminate the need to dispose of the oil and grease residue.

The cleaning solution is a biodegradable, nonflammable, noncorrosive, nontoxic oil dispersant and cleaner. It contains no volatile organic compounds, known carcinogens, or regulated chemicals.

Because of its nonhazardous nature, maintenance facilities will not have to store or transport containers of replacement fluid. It also eliminates hauling charges and tracking requirements for unsafe contaminants, because the cleaning solution does not require disposal under normal conditions. Although the filter requires changing every 30 days, used filters can usually be discarded with ordinary solid waste.

The SmartWasher was tested by the Air Force Management and Equipment Evaluation Program (MEEP) Office at two locations for six months and is recommended for Air Force use. For more information concerning MEEP, see TechTAP TA 9341 Air Force Management and Equipment Evaluation Program 29 October 1993 (Revised 1 May 1995).

Point of Contact...

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TECHNOLOGY BULLETIN



March 1998

(937) 255-7210 ext 3365

Issue #34

Explosion-proof Vacuum

TB0077

Cleans up fuels and solvents in hazardous environments.

In an industrial setting, removing hazardous waste, such as spilled solvents, can create a dangerous environment for workers. Volatile liquids not only must be removed, but their vapors also must be contained. After an aircraft has been defueled, the residual fuel in the tanks must be removed before maintenance can progress. Both of these situations require a vacuum capable of removing hazardous liquids and absorbing vapors to keep them from being released into the atmosphere.

Tiger-Vac, Incorporated, International, Plattsburg, NY, has developed an explosion-proof and dust-ignition-proof industrial vacuum system called the Tiger-Vac®. This vacuum is certified for use in the following:

Class I - Group D: atmospheres containing gasoline, naphtha, and other solvent vapors;

Class II - Group E: atmospheres containing metal dust, including aluminum and magnesium;

Class II - Group F: atmospheres containing carbon black, coal, and coke dust; or Class II Group G: atmospheres containing flour, starch, or grain dust.

Tiger-Vac is available with two power sources. One uses a sealed electric motor and the other uses compressed air. All electrical components of the electric model are certified for use in hazardous locations. The motor is totally enclosed eliminating any motor sparking hazards.

The pneumatic vacuum transforms compressed air into a powerful vacuum using the venturi principle, has no moving parts, and requires very little maintenance.

The Tiger-Vac vacuum uses two types of filters to remove hazardous vapors/particles from the air. A two-stage filter system is used for dustless operation. The first stage pre-filter uses a 1-micron washable polyester cloth with stainless steel filaments for continuous electrical continuity. The final stage contains a High Efficiency Particulate Air (HEPA) and Ultra Low Penetration Air (ULPA) filter with an efficiency of 99.99 percent on particles of .3- microns. Tiger-Vac uses an activated carbon filter to recover flammable liquids.

All metal parts of the tank and vacuum are made of aluminum and stainless steel. All metal and non-metal parts are compatible with fuels, solvents, and flammable solids. All parts of the vacuum contain electrical continuity and bonding techniques to ensure static dissipation. The Tiger-Vac's design requires the unit to be grounded during use and storage. Grounding reels are also available for extra safety.

The Tiger-Vac explosion-proof vacuum was tested by the Air Force Management and Equipment Evalua-

tion Program (MEEP) Office and recommended for use in the Air Force. For more information concerning MEEP, see TechTAP TA9341 Air Force Management and Equipment Evaluation Program 29 October 1993 (Revised May 1995).

Point of Contact...

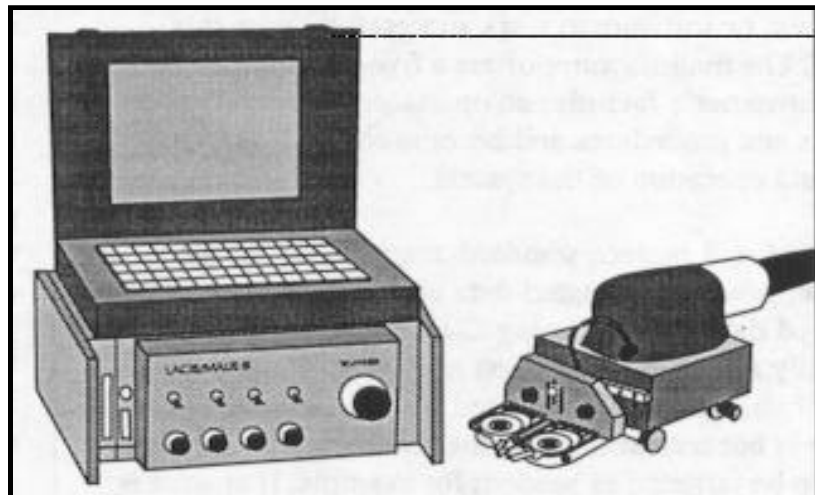
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AFRL/Materials and Manufacturing Directorate's High-Payoff Technologies

The Materials and Manufacturing Directorate provides systems support to Air Force Product Centers, Logistics Centers, and Operating Commands. Congressional mandates also require the directorate to make its technology and expertise in materials and manufacturing processes available to the commercial sector. Improving industrial processes and products increases the country's industrial strength and reduces the government's acquisition costs.



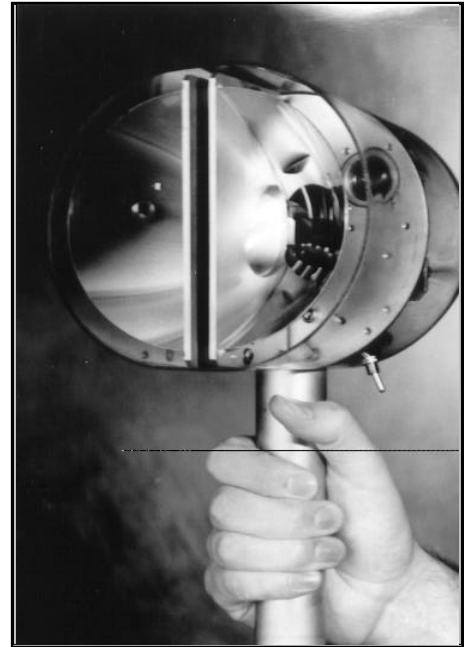
The following are some examples of high-payoff technologies available through Technology Transfer from the Materials and Manufacturing Directorate:

Mobile Automated Scanning System

The nondestructive inspection technology of the Mobile Automated Scanning (MAUS) System is available to organizations outside the Air Force. Originally developed by McDonnell Douglas Aerospace under Air Force sponsorship, the MAUS makes fast, accurate inspections using eddy current or ultrasonics to pinpoint hidden anomalies. The system works effectively on either metal or composite structures. For the first time an inspector can bring semi-automated inspection and sufficient data storage capability directly to the inspection site with virtually no setup time or limitations on the area to be scanned. As a result, users have reduced inspection time for fuselage crown skin inspection from 100 hours to four, without sacrificing waveform storage or accuracy of the results.

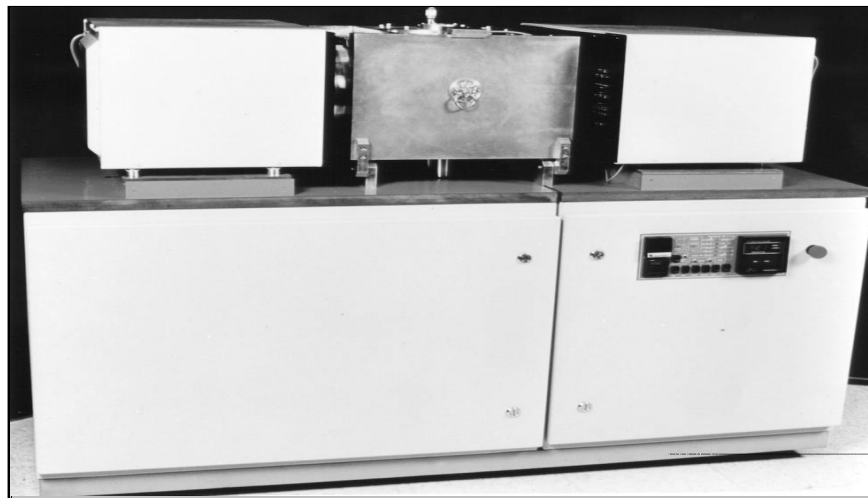
Noncontact Reflectance Probe

Scientists at the Air Force Research Laboratory's Materials & Manufacturing Directorate and Foster-Miller, Inc. developed fiber-optic sensor technology to improve the processing of carbon-carbon composites. This technology is being further developed and commercially marketed by Sensiv, Inc., as a surface analyzer for paints and coatings. The "Noncontact Reflectance Probe" is also being tested by the Air Force as an aircraft coatings surface analyzer. The probe uses a fiber-optic Fourier Transform Infrared (FTIR) Spectroscopy monitoring system that resembles a hand-held home camera lighting device and uses the two halves of a single ellipsoidal mirror to focus infrared energy at a surface to collect the spectral data. The data can then be compared against pre-existing calibrations or spectral libraries to determine surface properties. As a result, the probe is able to monitor processes like surface cure and identify surface coatings based on their spectral "footprints."



Fluxless, No-Clean Solder for Printed Circuit Boards

The single major process using liquid chemicals in manufacturing printed circuit boards (PCB) is soldering. Technicians use chemicals that pollute the environment to remove metal oxides during soldering. The Plasma Assisted Dry Soldering (PADS) process eliminates the need for chemicals and is applicable to many assembly processes. The project demonstrated high-volume manufacturing capability on real products such as PCBs for existing systems.



Additional Information

To receive more information about these or other activities in AFRL's Materials and Manufacturing Directorate, call (937) 256-0194.